

## Late Hopping

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When working with hops, we have different objectives when adding hops at different times. We add hops early for bittering, midway for flavor, and late for aroma. In truth, every hop added at any time adds all of these things, just in different quantities. You will get flavor from your bittering hops and you will get bitterness from your aroma hops. Grabbing some brewing software will help out in quickly visualizing this, but it all boils down to utilization.

The utilization of hops depends on the boil duration, vigor, wort concentration, and a bunch of other factors. Utilization curves typically goes up very quickly with initial boil durations but peaks at around an hour at 25-30%. In the time range of 20-30 minutes, you still get a decent utilization (15-20%) but get a bunch of great flavors which carry over as well. For a beer that you are aiming to get a lot of great hop character into, you might consider adding all of your bittering hops in this timeframe and knocking up your hopping rate. This gets your bitterness in and also gets some great hop character in as well.

Now, it must be said that with hop prices going up, people may be less tempted to do this. However, when you are only talking an extra buck or two for some amazing hop flavor, it is probably worth it.